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LIERMOND, at least in some of his drawings, has combined in his metachromatic bodies two distinct kinds of granulations, namely, chromatin granules and slime globules.—EDGAR W. OLIVE.

Papers on algae.—The following papers on algae appear in the volume of papers issued by the students of Dr. F. R. KJELLMAN in honor of his sixtieth birthday.

BORGE[17] lists forty-six species (mostly desmids) of fresh-water Chlorophyceae, of which several are new to science, from collections made by Dr. P. DUSÉN in Magellan Ter. in 1896, and in Tierra del Fuego Ter. and Desolation Island in 1906. He also enumerates 77 species, comprising all the fresh-water Chlorophyceae known at the present time from the islands south of Magellan Strait.

KYLIN[18] describes and figures four species of Chantransia, three of which are new to science.

SVEDELIUS[19] made a thorough study of the Ceylon reef vegetation at Point de Galle in the year 1902–03; first at the time of the winter or northeast monsoon (November–March) and later at the time of the summer or southwest monsoon (August). His observations were carried on with a view to establishing the existence of a periodicity in the marine vegetation of this region, and to showing how this was manifested and from what it resulted. He found that there is an undoubted antagonism between living coral and algal growth. Only certain calcareous algae and forms with creeping rhizomes, such as *Caulerpa clavifera*, can survive. Algal life was richest upon dead coral ledges and exposed rocks. The Florideae unquestionably dominate the vegetation of the littoral region at Point de Galle. The color of these forms is peculiar, being dark violet, gray-brown, or gray-green, instead of red or purple. It was proved that a marked periodicity prevails in the littoral algal flora on the coast of Ceylon. Certain species occur only at a certain time during the year, and their period of development is extremely limited. The chief mass of vegetation is made up of perennial species which live throughout the year; of these many produce fruit only during a certain time. Some species show no indication of periodicity, but appear the same at all times of the year. It was established that the periodicity depends upon the change of monsoon (*Monsunwechsel*), but the exact causes for this are not yet made clear. Apparently the condition of the water (temperature, salinity, amount of agitation), as influenced by the monsoon, might have considerable effect upon the periodicity.

SKOTTSBERG[20] accompanied the Swedish Antarctic Expedition and was in antarctic regions during January and February 1902, and in November and December of the same year. The South Shetland Islands and Graham Land (Louis Phillippe Peninsula, the Palmer Archipelago, Ross Island, and Snow Hill Island) were visited. The purpose of the paper is to give a short description of the meteorological and hydrographical conditions which rule the antarctic marine flora, a general survey of its appearance, and a rough sketch of its systematic composition. A list of 35 species of antarctic algae is furnished. According to the author, "the general character of the flora of the Graham region discloses . . . . several interesting, probably ancient, endemic types, and a large percentage of subantarctic, especially magellanian, species. Nothing favors the so-called bipolar forms."—JOSEPHINE E. TILDEN.

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[17] BORGE, O., Süsswasser-Chlorophyceen von Feuerland und Isla Desolacion. Botaniska Studier, tillägnade F. R. KJELLMAN, 21–34. *pl.* 2. *figs.* 5.

[18] KYLIN, HARALD, Zur Kenntnis einigen schwedischen Chantransia-Arten. *Op. cit.* 113–26. *figs.* 9.

[19] SVEDELIUS, NILS, Ueber die Algenvegetation eines ceylonischen Korallenriffes mit besonderer Rücksicht auf ihre Periodizität. *Op. cit.* 184–221. *pl.* 6. *figs.* 10.

[20] SKOTTSBERG, CARL, Observations on the vegetation of the antarctic sea. *Op. cit.* 245–64. *pls.* 7–9.

Morphology of Cephalotaxus drupacea.—It is interesting to compare the results of the study of *Cephalotaxus Fortunei* by COKER[21] with the results obtained by LAWSON[22] in a study of *C. drupacea* and published almost simultaneously. The two accounts are so nearly identical in the main features, that one may have a feeling of confidence that our knowledge of the structures described in these papers is well established for the genus. Cephalotaxus has been a genus of special interest on account of its supposed primitive character, emphasized in recent years by the study of its vascular anatomy. The studies of the reproductive structures seem to contradict this claim to a certain extent, as have all recent similar studies of other Taxineae.

The main results of LAWSON's study of *C. drupacea* may be summarized as follows: In the germination of the microspore no prothallial cell is cut off, and before pollination the generative and tube nuclei have been organized. Pollination occurs late in March, but no further nuclear divisions take place until the following spring, when the pollen tube begins to penetrate the nucellus and the generative nucleus divides. When the tube has reached the archegonial chamber, which takes about ten days, the nucleus of the body cell divides, forming two sperm nuclei of equal size, but with no wall-formation. The female gametophyte develops in the usual way, with free nuclear divisions, vacuolation and the parietal placing of the free nuclei, wall-formation, and centripetal growth. Four archegonia are organized, each with a distinct chamber, and with two or frequently three neck cells. A ventral canal nucleus is cut off and degenerates before fertilization. In fertilization the entire contents of the pollen tube are discharged into the egg, but the two sperm nuclei are not released from the membrane of the body cell until the interior of the archegonium is reached. The fusion nucleus gives rise to four free nuclei near the center of the egg, which pass toward the bottom, accompanied by the various food materials, where divisions continue until sixteen free nuclei are formed, when the first walls appear. Finally four

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[21] COKER, W. C., Fertilization and embryogeny in *Cephalotaxus Fortunei*. BOT. GAZETTE 43:1–10. *pl. 1. figs. 5.* 1907.

[22] LAWSON, A. A., The gametophytes, fertilization, and embryo of *Cephalotaxus drupacea*. Annals of Botany 21:1–23. *pls. 1–4.* 1907.